

Notice of Allowability

Application No.

10/521,637

Examiner

Theresa Trieu

Applicant(s)

CLEMENTS ET AL.

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the applicants' amendmnet filed on Jan. 31, 2007.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

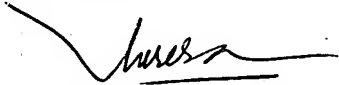
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


Theresa Trieu
Primary Examiner
Art Unit: 3748

EXAMINER'S AMENDMENT

This Office Action is responsive to the applicant's amendment filed on Jan. 31, 2007

Claim 7 has been amended. Claims 18-20 have been added. Thus, claims 1-20 are pending in this application.

Specification

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Therefore, the abstract filed on Jan. 19, 2005 is in an improper format (see MPEP §714+ and §1302.04). However, the Examiner has entered a new abstract with a proper format in the Examiner's Amendment to move this case forward (see attached).

Abstract (Currently Amended):

-- A bearing assembly is provided for a fuel delivery system that includes a pump (10) having a housing that rotatably receives a rotor (20) carrying vanes (26) thereon, a cam ring (70) received between the housing and rotor (20), and a support member of yoke (50) encompassing the cam ring (70) to selectively vary fuel flow. The bearing assembly (80) is a journal bearing between the yoke (50) and the cam ring (70) and includes an annular surface having a central opening therethrough. The annular surface includes a first, high pressure pad (102) and a second, low pressure pad (104) substantially diametrically opposite the first pad and separated by first and second lands (106, 108). The circumferential extent of the first pad (102) is at least as great as an inner diameter of the cam ring (70). Circumferential ends of the second pad (104) are wider than circumferential ends of the first pad. The first and second pads (102, 104) are formed by circumferentially extending grooves that extend an entire width of the bearing so that the cam ring moves between the first and second pads, and thereby varies a clearance between the lands (106, 108) and the cam ring (70) .--

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Allowable Subject Matter

Claims 1-20 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claims 1 and 7: As pointed out by applicant's amendment and applicant's argument (see remarks section page 6-7), the cited references fail to disclose or render obvious the claimed combination including the hydrostatic/hydrodynamic bearing including a first high pressure pad and second low pressure pad that are substantially diametrically opposite one another and separated by first and second lands to center the cam ring during operation.

Regarding claim 18: the dependent claim 13 has been rewritten in independent form including all the limitations of the base claim and any intervening claim as new claim 18; therefore, claim 18 is allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa Trieu whose telephone number is 571-272-4868. The examiner can normally be reached on Monday-Friday 8:30am- 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on 571-272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT
April 15, 2007

Theresa Trieu
Primary Examiner
Art Unit 3748

Abstract

A bearing assembly is provided for a fuel delivery system that includes a pump (10) having a housing that rotatably receives a rotor (20) carrying vanes (26) thereon, a cam ring (70) received between the housing and rotor (20), and a support member of yoke (50) encompassing the cam ring (70) to selectively vary fuel flow. The bearing assembly (80) is a journal bearing between the yoke (50) and the cam ring (70) and includes an annular surface having a central opening therethrough. The annular surface includes a first, high pressure pad (102) and a second, low pressure pad (104) substantially diametrically opposite the first pad and separated by first and second lands (106, 108). The circumferential extent of the first pad (102) is at least as great as an inner diameter of the cam ring (70). Circumferential ends of the second pad (104) are wider than circumferential ends of the first pad. The first and second pads (102, 104) are formed by circumferentially extending grooves that extend an entire width of the bearing so that the cam ring moves between the first and second pads, and thereby varies a clearance between the lands (106, 108) and the cam ring (70).

Abstract

A bearing assembly is provided for a fuel delivery system that includes a pump (10) having a housing that rotatably receives a rotor (20) carrying vanes (26) thereon, a cam ring (70) received between the housing and rotor (20), and a support member of yoke (50) encompassing the cam ring (70) to selectively vary fuel flow. The bearing assembly (80) is a journal bearing between the yoke (50) and the cam ring (70) and includes an annular surface having a central opening therethrough. The annular surface includes a first, high pressure pad (102) and a second, low pressure pad (104) substantially diametrically opposite the first pad and separated by first and second lands (106, 108). The circumferential extent of the first pad (102) is at least as great as an inner diameter of the cam ring (70). Circumferential ends of the second pad (104) are wider than circumferential ends of the first pad. The first and second pads (102, 104) are formed by circumferentially extending grooves that extend an entire width of the bearing so that the cam ring moves between the first and second pads, and thereby varies a clearance between the lands (106, 108) and the cam ring (70).